Message

From: Orme-Zavaleta, Jennifer [Orme-Zavaleta.Jennifer@epa.gov]
Sent: 1/6/2021 10:31:46 PM
To: Dunn, Alexandra [dunn.alexandra@epa.gov]
Subject: follow up

Hi Alex – in a way we were both right

There are 2 RfD's – one for chronic which had a UF of 10 and one for subchronic which had a UF of 3.

See the summary below

For PFBS, we develop a chronic RfD with a database UF of 10. The rationale is as follows:

A UF_D of 10 is applied to account for database deficiencies. The oral exposure database contains multiple short-term and subchronic-duration toxicity studies of laboratory animals (NTP, 2019; Bijland et al., 2011; Lieder et al., 2009a; 3M, 2001, 2000d), a two-generation reproductive toxicity study in rats (Lieder et al., 2009b), and multiple developmental toxicity studies in mice and rats (Feng et al., 2017; York, 2002). However, as thyroid hormone is known to be critical during developmental life stages, particularly for neurodevelopment, the database is limited by the lack of developmental neurotoxicity studies. Further, due to the lack of chronic duration studies, there is additional uncertainty regarding how longer-term exposures might impact hazard identification and dose-response assessment for PFBS via the oral route (e.g., potentially more sensitive effects). Lastly, as immunotoxicity and mammary gland development are effects of increasing concern across several members of the larger PFAS family (Grandjean, 2018; Liew et al., 2018; White et al., 2007), the lack of studies evaluating these outcomes following PFBS exposure is a limitation in the database.

We also developed a subchronic RfD, the database UF is a 3 and the rationale is as follows:

A UF_D of 3 is applied due to database deficiencies. The oral exposure database contains multiple short-term and subchronic-duration toxicity studies of laboratory animals (NTP, 2019; Bijland et al., 2011; 3M, 2010; Lieder et al., 2009a; 3M, 2001, 2000d), a two-generation reproductive toxicity study in rats (Lieder et al., 2009b), and multiple developmental toxicity studies in mice and rats (Feng et al., 2017; York, 2002). However, the observation of decreased thyroid hormone is known to be a crucial element during developmental life stages, particularly for neurodevelopment, and the database is limited by the lack of developmental neurotoxicity studies. In addition, as other health effect domains such as immunotoxicity and mammary gland development are effects of increasing concern across several members of the larger PFAS family (Grandjean, 2018; Liew et al., 2018; White et al., 2007) the lack of studies evaluating these outcomes following PFBS exposure is a limitation in the database.

We can talk further

Jennifer Orme-Zavaleta, PhD
Principal Deputy Assistant Administrator
Office of Research and Development
US Environmental Protection Agency

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